IN THE CLAIMS:

Please cancel claims 16-26, amend claims 1-15, and add new claims 27-39, as shown below in the detailed listing of all claims which are, or were, in this application.

1. (Currently amended) Method for precipitating mineral particles on fibres to be used for manufacturing paper, paperboard or the like, which method comprises at least the following steps:

(a) a fibre material containing the fibres to be used in manufacturing is fed into a precipitation reactor;

(b) a reactive mineral substance~~, such as calcium hydroxide ($Ca(OH)_2$),~~ is fed into the precipitation reactor;

(c) the reactive mineral substance and fibre material are mixed to form a fibre suspension in the precipitation reactor and/or before these substances are fed into the precipitation reactor;

(d) the fibre suspension in the precipitation reactor is exposed to a substance which precipitates at least partially ~~the~~ said reactive mineral substance, in which case at least part of the precipitated mineral substance thus formed precipitates on fibres residing in the fibre suspension,

(e) the thus treated fibre suspension is led out of the

precipitation reactor,

(f) a gas, which contains a substance precipitating ~~the~~ said reactive mineral substance~~, such as carbon dioxide (CO_2),~~ is fed into the precipitation reactor, for forming a gas space containing ~~the~~ said precipitant in the precipitation reactor, and

(g) the fibre suspension that has been fed and/or that is formed in the precipitation reactor is disintegrated as small solid particles or liquid drops and/or particles into ~~the~~ said gas space, ~~characterized in that~~ wherein

- the fibre material is activated in an activation zone before the precipitation and/or during the precipitation so that the ability of the fibres to bind with each other and to bind precipitated mineral substance increases, and that

- the dwell-time of the fibre material in the activation zone is ~~short,~~ < 10 seconds.

2. (Currently amended) Method according to claim 1, ~~characterised in that~~ wherein in stage (g) the liquid phase of the fibre suspension is disintegrated as small liquid drops, which are predominantly < 10 mm, ~~typically < 1 mm,~~ into the gas space.

3. (Currently amended) Method according to claim 1, ~~characterised in that~~ wherein forces are targeted at the fibre suspension in an activation zone, located in front of the precipitation reactor or at the beginning of the precipitation reactor with regard to fibre suspension flow, said forces activating the fibres so that the ability of the fibres to bind with each other, and to bind precipitating and/or precipitated mineral substance, increases.

4. (Currently amended) Method according to claim 3, ~~characterised in that~~ wherein in order to promote activation, forces such as recurrent impacts, double impacts, shear forces, turbulence, over- and underpressure pulses or other corresponding forces are directed into the fibre suspension, whereby

- the fibres are mechanically activated, especially their surfaces, ~~by fibrillating or refining the fibres and opening their lumens for mineral substances, for example,~~ and/or
- the fibre surfaces are chemically activated~~, for example, forming active OH^--groups on the fibre surfaces~~.

5. (Currently amended) Method according to claim 3, ~~characterised in that~~ wherein the fibre suspension flow running through the

activation zone is subjected to sequential strong impacts and double impacts, which are generated in the fibre suspension flow using blades or the like rotating at a speed of 5 - 250 m/s.

6. (Currently amended) Method according to claim 3, ~~characterised in that~~ wherein the activation zone of the precipitation reactor comprises a through-flow mixer operating on the principle of an impact mill, having several~~, typically 3 - 8, more typically 4 - 6~~ coaxially arranged rings equipped with blades, of which at least every other ring operates as a rotor, and the adjacent rings of these rings as stators or rotors, and in which the difference in speed between the rotors and the stators and rotors of adjacent rings is 10 - 500 m/s, ~~typically 50 - 200 m/s,~~

- the fibre suspension is supplied so as to move from the centre of the through-flow mixer radially outwards through its rings, in which case the blades on the rings direct recurrent impacts, double impacts, shear forces and/or over- and underpressure pulses on the fibre suspension flowing outwards, which all together activate the fibres.

7. (Currently amended) Method according to claim 6, ~~characterised in that~~ wherein at least part of the gas to be fed into the precipitation reactor, containing a substance precipitating the mineral substance, is fed to the precipitation reactor through the activation zone, in which case the fibres activated in this activation zone come into contact with ~~the~~ said precipitant immediately during activation or right after it.

8. (Currently amended) Method according to claim 3, ~~characterised in that~~ wherein the dwell-time of the fibre suspension containing the fibre material and the reactive mineral substance in the activation zone is ~~typically~~ < 2 s~~, more typically < 1 s~~.

9. (Currently amended) Method according to claim 1, ~~characterised in that~~ wherein gas containing > 5 %~~, typically > 10 %,~~ of precipitant~~, such as carbon dioxide,~~ is fed into the precipitation reactor.

10. (Currently amended) Method according to claim 1, ~~characterised in that~~ wherein

- gas containing the precipitant is pure or nearly pure carbon dioxide, combustion gas or other carbon dioxide-containing gas, or any gas suitable for precipitating the used reactive mineral substance, or is a mixture of these gases, and that
- gas containing the precipitant is fed into the precipitation reactor so that overpressure is maintained in the precipitation reactor.

11. (Currently amended) Method according to claim 1, ~~characterised in that~~ wherein

- the fibre suspension is led through two or several precipitation reactors wherein the gas composition of the gas spaces ~~may be~~ is different~~, for example, so~~ such that
- the gas containing the precipitant in the first precipitation reactor is pure or nearly pure carbon dioxide, and in the next precipitation reactor or in the one after that the gas is a combustion gas or another gas less rich in carbon dioxide content, or that
- the gas containing the precipitant in the first reactor(s) is less rich in carbon dioxide content, and in the next precipitation

reactor or in the next after that, the gas is pure or nearly pure carbon dioxide.

12. (Currently amended) Method according to claim 1, ~~characterised in that~~ wherein

- the reactive mineral substance consists of calcium hydroxide, calcium sulphate, calcium oxide or other reactive mineral substance and/or their mixture, which is suitable to be precipitated with a precipitant, and

- the reactive mineral substance is selected so that the product to be manufactured from fibres is brought the desired characteristics~~, for example, the desired optical characteristics~~.

13. (Currently amended) Method according to claim 1, ~~characterised in that~~ wherein the fibre material comprises

- virgin fibre obtained from chemical, mechanical, chemi-mechanical, thermo-mechanical or corresponding process;

- de-inked or inked recycled fibre obtained from newsprint, kraft paper, soft paper, special paper or paper board, or fibre obtained from broken or other corresponding fibre,

- bleached or unbleached fibre, refined or unrefined fibre, dried or undried fibre, or any mixture of any of these.

14. (Currently amended) Method according to claim 1, ~~characterised in that~~ wherein fibre material contains fibres, in addition to fine matter such as fibre based fine matter, impurities and/or mineral substances.

15. (Currently amended) A method according to claim 1, ~~characterised in that~~ wherein fibre material is fed into the precipitation reactor at a ~~thickness~~ dry matter content of 0.1 – 40%~~, more typically 1 – 15%, most typically 3 – 7 %~~.

Claims 16-26 (Canceled)

27. (New) The method of claim 1, wherein the reactive mineral substance is calcium hydroxide.

28. (New) The method of claim 1, wherein the substance precipitating reactive mineral substance is carbon dioxide.

29. (New) The method of claim 2, wherein the small drops are < 1 mm.

30. (New) The method of claim 4, wherein the fibres are mechanically activated, especially their surfaces, by fibrillating or refining the fibers and opening their lumens for mineral substances, and/or the fibre surfaces are chemically activated by forming active -OH-groups on the fibre surfaces.

31. (New) The method of claim 6, wherein the impact mill has 3-8 coaxially arranged rings equipped with blades.

32. (New) The method of claim 6, wherein the impact mill has 4-6 coaxially arranged rings equipped with blades.

33. (New) The method of claim 6, wherein the difference in speed between the rotors and the stators and rotors of adjacent rings is 50-200 m/s.

34. (New) The method of claim 8, wherein the dwell-time of the fibre suspension containing the fibre material and the reactive mineral substance in the activation zone is 1 < s.

35. (New) The method of claim 9, wherein the gas contains > 10% of precipitant.

36. (New) The method of claim 9, wherein the precipitant is carbon dioxide.

37. (New) The method of claim 35, wherein the precipitant is carbon dioxide.

38. (New) The method of claim 15, wherein the fibre material is fed into the precipitation reactor at a dry matter content of 1-15%.

39. (New) The method of claim 38, wherein the fibre material is fed into the precipitation reactor at a dry matter content of 3-7%.